



Quanterra
2800 George Washington Way
Richland, Washington 99352-1613

509 375-3131 Telephone
509 375-5590 Fax

0053050

CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
3350 George Washington Way
Richland, WA 99352

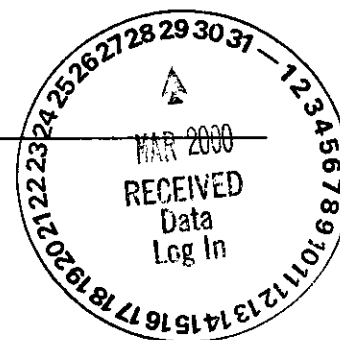
RECEIVED
APR 25 2000

March 22, 2000

EDMC

Attention: Joan Kessner

SAF Number : B99-022
Date SDG Closed : February 29, 2000
Number of Samples : Three (3)
Sample Type : Water
SDG Number : W03080
Data Deliverable : 45 Day / Summary



I. Introduction

On February 15, 2000, three water samples were received at STL Richland (STLR) for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
9D8KG910	B0XKJ5	WATER	2/15/00
9D8KGD10	B0XKJ6	WATER	2/15/00
9D8KGF10	B0XKJ7	WATER	2/15/00

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analysis was:

Chemical Analyses
Chromium Hex by EPA method 7196

Bechtel Hanford, Inc.
March 22, 2000
Page 2

III. Quality Control

The analytical results for each analysis performed under SDG W03080 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in mg/L.

IV. Comments


Chemical Analyses

Chromium Hex by EPA method 7196:

The LCS, batch blank, sample, sample duplicate (B0XKJ5) and sample matrix spike/matrix spike duplicate (B0XKJ5) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:


Jackie Waddell
Project Manager

SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W03080 / 10134
LAB SAMPLE ID: 9D8KG910 MATRIX: WATER
CLIENT ID: B0XKJ5 DATE RECEIVED: 2/15/2000 11:50:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
HEXCHROME	3.00E-03		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196

Number of Results:

SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W03080 / 10134
LAB SAMPLE ID: 9D8KGD10 MATRIX: WATER
CLIENT ID: B0XKJ6 DATE RECEIVED: 2/15/2000 11:50:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
HEXCHROME	1.21E-01		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196

Number of Results:

SAMPLE RESULTS

LAB NAME: QUANTERRA, Richland **SDG: /RPT GRP:** W03080 / 10134
LAB SAMPLE ID: 9D8KGF10 **MATRIX:** WATER
CLIENT ID: B0XKJ7 **DATE RECEIVED:** 2/15/2000 11:50:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
HEXCHROME	1.82E-01		N/A	N/A	2.00E-03	mg/L	N/A	EPA7196

Number of Results:

DUPLICATE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W03080 / 10134
LAB SAMPLE ID: D8KG914R MATRIX: WATER
CLIENT ID: B0XKJ5 DATE RECEIVED: 2/15/2000 11:50:00
ORIG LAB SAMPLE ID: 9D8KG910

ANALYTE	DUP RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
HEXCHROME	3.00E-03	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196	3.00E-03	0.00%

Number of Results:

BLANK RESULTS

LAB NAME: QUANTERRA, Richland **SDG /RPT GRP:** W03080 / 10134
LAB SAMPLE ID: D8KPH11B **MATRIX:** WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	YIELD	METHOD NUMBER
HEXCHROME	0.00E+00	U	N/A	N/A	2.00E-03	mg/L	N/A	EPA7196

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W03080 / 10134
LAB SAMPLE ID: D8KPH12S MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
HEXCHROME	5.03E-01		N/A	N/A	2.00E-03	mg/L	N/A	5.00E-01	100.60%

Number of Results:

MATRIX SPIKE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W03080 / 10134
LAB SAMPLE ID: D8KG912W MATRIX: WATER

ANALYTE	SPIKE RESULT* Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.26E-01	N/A	N/A	2.00E-03	mg/L	3.00E-03	5.26E-01	100.00%

Number of Results:

*Spike Result Corrected For Sample Result

Result = IDL When Not Detects

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Quanterra Analytical Services, Inc
rptChemRadMatrixSpike; v3.41

0010

MATRIX SPIKE RESULTS

LAB NAME: QUANTERRA, Richland SDG: /RPT GRP: W03080 / 10134
LAB SAMPLE ID: D8KG913W MATRIX: WATER

ANALYTE	SPIKE RESULT* Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	REPORT UNIT	SAMPLE RESULT	EXPECTED	RECOVERY
HEXCHROME	5.21E-01	N/A	N/A	2.00E-03	mg/L	3.00E-03	5.26E-01	99.05%

Number of Results:

*Spike Result Corrected For Sample Result

Result = IDL When Not Detected

(Q)ualifiers: U = Analyte result < MDA/IDL,
J = No U qualifier and result < RDL.

Quanterra Analytical Services, Inc
rptChemRadMatrixSpike; v3.41

2011



Richland Laboratory
Data Review Check List
METALS

Work Order Number(s): D8KG9, D8KGD, D8KGF Batch - 0046402 Lot: JDB150183				
Lab Sample Numbers or SDG: W03080				
Method/Test/Parameter: CR/L in water RICHWC5003 R.Y				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency with required number of levels?	✓			
2. Correlation coefficient within QC limits?	✓			
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters \leq reporting limit?	✓			
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			
2. CCB analyzed at required frequency and all results \leq reporting limit?	✓			
C. Sample Analysis				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?			✓	
2. Were all sample holding times met?	✓			
D. QC Samples				
1. All results for the preparation blank below limits?	✓			
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			
4. Analytical spikes within QC limits where applicable?			✓	
5. ICP only: One serial dilution performed per SDG?			✓	
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	

CHAIN OF CUSTODY

W-21023

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-022-19		Page 1 of 1	
Collector Nielson/Johansen/Winterrose		Company Contact W McMahon		Telephone No. 375-9434		Project Coordinator TRENT, SJ		Price Code 7N Data Turnaround 45 Days	
Project Designation 100-KR-4 Treatment System - Operational Sampling		Sampling Location 100KR-4		SAF No. B99-022		Air Quality <input type="checkbox"/>			
Ice Chest No. ERC99-074		Field Logbook No. EL 1381-3		COA R10KR4C560		Method of Shipment Hand Delivered			
Shipped To Quanterra Incorporated		Offsite Property No.		Bill of Lading/Air Bill No.					
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation		Cool 4C					
		Type of Container		P					
		No. of Container(s)		1					
		Volume		500mL					
Special Handling and/or Storage				Chromium Hex - 7196					
SDG W03080		SAMPLE ANALYSIS		J03150183					
Sample No.	Matrix *	Sample Date	Sample Time						
BOXKJ5 D8KG9	Water	2/15/00	0926	X					
BOXKJ6 D8KG-D	Water	2/15/00	0934	X					
BOXKJ7 D8KG-F	Water	2/15/00	0938	X					
CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS					
Relinquished By	Date/Time	Received By	Date/Time	<p>< 2,000 pci/gm</p>					
Relinquished By	Date/Time	Received By	Date/Time						
Relinquished By	Date/Time	Received By	Date/Time						
Relinquished By	Date/Time	Received By	Date/Time						
Relinquished By	Date/Time	Received By	Date/Time						
Relinquished By	Date/Time	Received By	Date/Time						
LABORATORY SECTION	Received By	Title		Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By		Date/Time					

Matrix *

- S=Soil
- SE=Sediment
- SO=Solid
- S=Sludge
- W=Water
- O=Oil
- A=Air
- DS=Drum Solids
- DL=Drum Liquids
- T=Tissue
- W1=Wipe
- L=Liquid
- V=Vegetation
- X=Other

0015

BHI-EE-011 (10/99)

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 2-15 1150 SG#: W03080
Work Order Number: U03150183 SAF #: B99-022
Shipping Container ID: 99-074 Chain of Custody #: B99-022-19

1. Custody Seals on shipping container intact? Yes ☐ No ☒
2. Custody Seals dated and signed? Yes ☐ No ☒
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature 3°
5. Vermiculite/packing materials is Wet ☐ Dry ☒ na
6. Number of samples in shipping container: 3
7. Sample holding times exceeded? Yes ☐ No ☒

8. Samples have:

☒ tape
☒ custody seals

☐ hazard labels
☐ appropriate sample labels

9. Samples are:

☒ in good condition
☐ broken

☐ leaking
☐ have air bubbles

10. Where any anomalies identified in sample receipt? Yes ☐ No ☒
11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: MiddlebergDate: 2-15-02

Telephoned To: _____

On _____

By _____

RQC050

Quanterra Incorporated
WET CHEM BATCHSHEET
RichlandRun Date: 2/15/00
Time: 15:39:28

PRODUCTION FIGURES - WET CHEM

<u>TOTAL</u> <u>NUMBER</u>	<u>SAMPLE</u> <u>NUMBER</u>	<u>QC</u>	<u>RE-RUN</u> <u>MATRIX</u>	<u>RE-RUN</u> <u>OTHER</u>	<u>MISC</u> <u>NUMBER</u>	<u>TOTAL</u> <u>HOURS</u>	<u>EXPANDED</u> <u>DELIVERABLE</u>
-------------------------------	--------------------------------	-----------	--------------------------------	-------------------------------	------------------------------	------------------------------	---------------------------------------

METHOD: EA Hexavalent Chromium
QC BATCH #: 0046402
PREP DATE: 2/16/00
USER: ROSSR6A)
INITIALS:
PREP
ANALDATA ENTRY:
INITIALS
DATE

<u>Work Order</u>	<u>Lab Number</u>	<u>Structured</u> <u>Analysis</u>	<u>Exp.</u> <u>Del.</u>	<u>Analysis</u> <u>Date</u>	<u>Sample ID:</u>
D8KPH-1-01	J-0B150000-402-B	XX I 88 EA 5I			INTRA-LAB BLANK
D8KPH-1-02	J-0B150000-402-C	XX I 88 EA 5I			INTRA-LAB CHECK
D8KG9-1-01	J-0B150183-001	XX I 88 EA 5I			BOXKJ5
D8KG9-1-03	J-0B150183-001-D	XX I 88 EA 5I			BOXKJ5
D8KG9-1-02	J-0B150183-001-S	XX I 88 EA 5I			BOXKJ5
D8KG9-1-04	J-0B150183-001-X	XX I 88 EA 5I			BOXKJ5 DUP
D8KGD-1-01	J-0B150183-002	XX I 88 EA 5I			BOXKJ6
D8KGF-1-01	J-0B150183-003	XX I 88 EA 5I			BOXKJ7

Control Limits

(85-115)

(85-115)

(85-115)

0017

COC Signature Page

Lot or Batch #:	Initials/Date	Procedure #
0046402		
Released By	<u>TH 2/16/00</u>	<u>RC0009</u>
Received	<u>RRoss 2/16/00</u>	<u>RICHWC5003 R.4</u>
Released By	<u>RRoss 2/16/00</u>	<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		
Released By		<u>n/a</u>
Received		